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FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)

Administration of the)
North American Numbering Plan)

CC Docket No. 92-237
Phase I

**U S WEST REPLY COMMENTS
REGARDING NUMBER PORTABILITY**

I. INTRODUCTION AND SUMMARY

The subject of local number portability received relatively little discussion in the comments. This is understandable given that this portability issue bears no relevance to the primary focus of this inquiry: who should administer the North American Numbering Plan. Nevertheless, some of the comments did address the portability issue, and some of these comments contained factual errors. Part II of this Reply corrects these errors.

Part III of this Reply begins to discuss some of the important public policy, operational, and economic issues that were largely ignored in the comments, including those filed by the most vocal proponents of number portability. As the discussion in this Reply makes apparent, these other issues must be addressed before consideration can be given to implementing additional forms of local number portability.

One important point deserves mention at the outset. An intelligent discussion regarding any subject requires consensus over the question being discussed. Some commenters give the impression that the question is whether local number portability will be made available at all. But as oth-

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ers pointed out in their comments,¹ some forms of local number portability are already available today and, with the work now being done in connection with personal communications services, other, more robust forms of number portability can be expected in the near future. Thus, the real issues that must be addressed by the industry are three: (1) Are the current and planned forms of number portability inadequate to meet the market demand for this capability; (2) If so, what additional forms of number portability can be implemented to satisfy this market demand; and (3) Is this market demand large enough that carriers will recoup their implementation costs?

Common to all three questions is the market demand for number portability. Regrettably, there is no evidence in the record that the current and planned forms of number portability are not adequate to address the current market demand for this capability. Without such evidence, it makes little sense to discuss the cost and feasibility of additional forms of number portability because there can be no assurance that carriers can recover their costs in implementing any new capability. Indeed, without such evidence, there can be no assurance that any new form of number portability actually implemented will satisfy the market demand for that capability.

Some have suggested that the Commission initiate a separate proceeding limited to the subject of local number portability so that the industry's attention is not diverted by the other important issues raised in the

¹See, e.g., Ameritech Comments at 13; GTE Comments at 19; U S WEST Comments.

current proceeding.² While U S WEST does not oppose this recommendation, it must question the value of such a proceeding until appropriate market demand data is submitted in the public record.

II. SOME OF THE NUMBER PORTABILITY COMMENTS CONTAIN FACTUAL ERRORS

MFS Communications asserts that "the technology [to provide local number portability] is available" and that, as a result, the Commission should "requir[e] the local exchange carriers to implement number portability technology . . . within one year after an eligible carrier requests it."³ MFS is mistaken. The technology is not now available;⁴ indeed, even MFS acknowledges that the type of number portability it seeks would represent "a significant technical advance."⁵

Moreover, the form of local number portability sought by MFS could not be implemented in one year even if the technology were available. MFS proposes use of a data base system similar to that being deployed for 800 service. However, for 800 service, the Commission imposed an 18-month

²See, e.g., Illinois Commission Comments at 6.

³MFS Comments at 8 and 9. One must question the seriousness in which MFS makes its proposal given its admission that it does not know "the cost, feasibility, and other consequences of actually deploying a database system for local number portability" (*id.* at 8-9), and given its failure to provide any market demand data for more robust forms of local number portability.

⁴See, e.g., Sprint Comments at 10; Bell Atlantic Comments at 5 n.6; NYNEX Comments at 8; BellSouth Comments at 16.

⁵MFS Comments at 9.

implementation deadline, which it was later required to extend by two months.

There is no reason to believe that this same 20-month implementation schedule for 800 data base could also be used with respect to a local number portability data base system. In the first place, at the time the Commission imposed its 800 deadline in August 1992, the industry had already spent years planning and developing its 800 data base system;⁶ indeed, at the time the deadline was imposed, many 800 data bases were already operational (*albeit* in connection with certain intraLATA 800 services only). None of this development work and implementation has been done in connection with a local number portability data base system.

Moreover, implementation of a data base system for local number portability would be an enormous undertaking compared to the 800 data base system. The 800 data base system was deployed in connection with numbers in one Service Access Code only. The provision of a similar system for local number portability may require a separate data base system for each of the 144 geographic Numbering Plan Area codes (because of the number of working numbers in each NPA).⁷ Consequently, MFS's sugges-

⁶Planning for the current 800 data base system began in 1982, when the BOCs learned that the data base system they had been using would be assigned to AT&T at divestiture.

⁷Actually, the telephone industry may be required to deploy more than 144 data base systems. This is because the Bell companies are subject to the LATA restrictions of the MFJ, there are more LATAs than there are NPAs, and those LATA restrictions may influence how the Bell companies are allowed to implement new technologies to provide such capabilities as number portability. U S WEST has not had an opportunity to examine thoroughly the complex legal and operational issues associated with the discongruence of LATA and NPA boundaries.

tion that carriers deploy a data base system for local number portability within one year of receiving a request is not practical (even if the technology necessary to provide this capability were already developed and deployed).⁸

Unlike MFS, Teleport Communications acknowledges that the capability to provide more robust forms of local number portability do not now exist. However, Teleport asserts that local portability can be provided in the near term and at "minimal" cost because "Local Number Portability is expected to be a normal AIN feature."⁹ In fact, local number portability is not "a normal AIN feature."

While Advanced Intelligent Networks will certainly facilitate the provision of number portability, the deployment of AIN by itself will not enable carriers to provide this portability. The AIN software generics being developed by switch vendors are being designed so carriers have more flexibility in programming their switches to perform new functions during call processing. For example, these AIN generics may allow switches to query a remote data base after receipt of the dialed digits, and this data base query could be used to identify the carrier serving the called party. However, even assuming these AIN generics work as advertised,¹⁰ the provision of local

⁸However, the complexity and enormity of universal local number portability *vis-a-vis* 800 data base are not just upgrading and expanding the networks of all carriers, but also involve a variety of operational and public policy issues that did not have to be addressed in connection with 800 data base. See Part III *infra*.

⁹Teleport Comments at 7.

¹⁰The full functionality of the AIN generics now under development cannot be determined until they are installed and tested. U S WEST fears that, at least in the near future, AIN functionalities available in one switch type (e.g., DMS-100) may not be available in other switch types (e.g., 5ESS). In addition, many AIN functionalities will not be available for

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number portability would still require the deployment of additional hardware (e.g., data bases), the development of additional software, and the expansion of existing network components to handle the increased traffic and signaling requirements — in addition to resolving all the public policy, operational, and economic issues discussed in Part III of this Reply (e.g., new billing systems, new network addressing arrangements).¹¹

Finally, McCaw Cellular Communications contends that the "biggest problem with local number portability is that no one is planning for it."¹² U S WEST cannot agree with this observation. In the first place, several local number portability options are already available and carriers continue to find innovative ways to use the existing network (notwithstanding its current limitations) to provide yet even more portability options, as at least MFS has recognized.¹³ Second, the entire telecommunications industry is working on the assignment of a Service Access Code for use in the provision of additional portability capabilities. Although the focus of this work has been in connection with personal communications services, there is no

the 1AESS before 1995, and a directory number trigger for the 1AESS may not be available until a later date.

¹¹Moreover, while telephone company networks are evolving towards AIN, U S WEST does not know whether the networks of other carriers (including competitive access providers and interexchange carriers) are also moving toward AIN. This is important because, as discussed in Part III(B) *infra*, the provision of local number portability requires the participation of the entire industry, including competitive access providers, interexchange carriers, and cellular carriers.

¹²See McCaw Comments at 20. See also note 1 *supra*.

¹³See MFS Comments at 6-7 and n.6.

technical reason why this same SAC cannot be used by other service providers in connection with their services.

Third, local number portability is one of the subjects that will be discussed as part of the Proposal on the Future of Numbering in World Zone 1:

[T]he NANPA strongly recommends that number portability must be a prime consideration when developing the numbering plan for the future of WZ1. * * * It therefore behooves the entire telecommunications sector, i.e., industry, users, and regulators, to actively study the methods by which service provider portability can be implemented in order to determine the one method that is the most efficient and effective.¹⁴

Finally, at least the telephone industry is moving towards deployment of the Advanced Intelligent Network. As discussed above, these AIN capabilities, if also implemented by the rest of the industry, should facilitate the capability to provide new features like local number portability.

III. THERE ARE SIGNIFICANT PUBLIC POLICY, ECONOMIC AND OPERATIONAL ISSUES THAT MUST BE ADDRESSED BEFORE NEW FORMS OF NUMBER PORTABILITY CAN BE IMPLEMENTED

There is a tendency in discussing a subject like local number portability to focus on the technology questions (*e.g.*, how and when the capability can be introduced). However, there are a series of public policy, operational, and economic issues that are equally (if not, more) important. Some of these other issues are summarized below.

¹⁴North American Numbering Plan Administrator's Proposal on the Future of Numbering in World Zone 1, § 5.2, p. 24 (2d edition, Jan. 4, 1993). McCaw is therefore mistaken in asserting that "Bellcore's draft Long-Range Numbering Plan does not even mention" number portability. See McCaw Comments at 20.

A. Local Number Portability Would Appear to be an Issue For the State Commissions. The Communications Act reserves to the States the right to regulate telecommunications within their borders.¹⁵ It is thus the States, and not this Commission, which have the jurisdiction to determine whether there should be competition in the local exchange in the provision of intrastate services. And the authority to decide whether there should be such competition necessarily includes the power to determine the terms under which competition will be allowed. It would appear, then, that such questions as whether local number portability should be made available, when, where, and under what terms are matters reserved to the state commissions.¹⁶

B. The Provision of Number Portability Requires the Participation of the Entire Industry, Including Interexchange Carriers. The most vocal proponents of local number portability give the impression that new portability options can be provided simply by having the Bell and GTE companies modify their networks.¹⁷ This impression is grossly misleading because, if local number portability is to be viable, all members of the industry must

¹⁵See 47 U.S.C. § 152(b). See also Louisiana PUC v. FCC, 476 U.S. 355 (1986).

¹⁶This conclusion is consistent with past practice whereby such numbering issues as NPA splits and new dialing arrangements have been decided by the state commissions rather than this Commission.

¹⁷MFS, for example, asks only that "local exchange carriers" be required to implement local number portability. MFS Comments at 10. Teleport similarly states that "LECs" should deploy SS7/AIN capability in a manner consistent with the eventual implementation of local number portability. Teleport Comments at 8. Nowhere in their comments do these carriers acknowledge that they too must have number portability capability, nor do they acknowledge that cellular and interexchange carriers must have this capability as well.

have the capability of providing local number portability — including independent telephone companies, cellular carriers, competitive access providers, and interexchange carriers.

The provision of local number portability necessarily means that carriers can no longer use their current methods of routing a call to completion (because the carrier serving the called party would no longer be identified on the basis of the NPA-NXX in the dialed digits). As a result, carriers must find another means of identifying the carrier serving the called party (*e.g.*, a data base query). This means that carriers directly serving subscribers (*e.g.*, cellular carriers, competitive access providers, telephone companies) must be able to identify the carrier of the called party on every local call originated by one of their customers — regardless of whether the party being called uses a number that has become portable.

This same carrier identification function must also be performed on all incoming interexchange calls. Today, most incoming interstate traffic bypasses the LATA tandems and is routed directly to the end office switch serving the called party. Interexchange carriers route their traffic to end offices using the same routing method employed by local carriers — that is, on the basis of the NPA and NXX in the dialed digits. If, however, the NPA-NXX no longer identifies the switch serving the called party, interexchange carriers must either (a) re-route all their traffic to a LATA tandem switch (so the telephone company owning that switch can perform the carrier

identification function for the interexchange carrier), or (b) also use another means to identify that switch (e.g., a data base query).¹⁸

Exercise of the first option would require a massive re-design and upgrade of the local network to accommodate the additional traffic that once bypassed the LATA tandem. Exercise of the second option presents interexchange carriers with the same set of challenges presented to local carriers in connection with the provision of local number portability.

The point is that the provision of a workable local number portability capability requires the active participation of the entire industry. All carriers must agree to convert to number portability; all must agree to use the same method of portability; and all must agree to implement any new capability on a similar schedule.

C. The Wisdom of Focusing on Local Number Portability. Rather than National Number Portability. Must Be Resolved. The criticism of the current addressing scheme is that it is inflexible because it is based on geography. A change in a customer's location (or serving carrier) ordinarily requires a number change (unless the customer subscribes to one of the current methods of number portability). More robust forms of local number portability are championed as removing this inflexibility. But it is important to note that these more robust forms remove this inflexibility only in part; even these new forms of local number portability continue to be based

¹⁸If an interexchange carrier does not have a local number portability capability and, as a result, it continues to route calls to the end office identified by the NPA-NXX in the dialed digits, its calls will be sent to a recording (advising its customers that the calls cannot be completed) if the called party is no longer served by the switch.

on geography and, as such, contain a potentially significant restriction on the portability of the numbers.

While there is no consensus in the comments over the definition of local, most seem to agree that, at least in the near future, it would mean some geographic area less than a full NPA.¹⁹ Consequently, even if a more robust form of local number portability were deployed, customers moving outside this "local" area must still accept a number change (*e.g.*, a customer moves from a south Denver suburb in the 303 NPA to a northern Colorado Springs suburb in the 719 NPA).

As noted above, work is now underway to assign a Service Access Code to providers interested in offering services with portable numbers. With a number in this SAC, customers can retain their number regardless of their location throughout the country (*i.e.*, in or outside the local area) and regardless of their service provider. It would appear that the provision of national number portability would be a more attractive option to customers than would the provision of local number portability. And it would appear that the provision of national number portability would be more attractive to a Commission charged with regulating interstate services.

There are, moreover, practical reasons for the industry to focus its efforts on the provision of national number portability rather than local number portability. A national portability option would allow the industry to transition gracefully to a new addressing scheme while meeting the full

¹⁹*See, e.g.*, McCaw Comments 19 ("local exchange service" area); MFS Comments at 8 n.7 ("selected geographic areas where competition is most advanced").

demand for portable numbers in the process. The provision of local number portability, in contrast, would require a "flash cut" approach, as this capability would likely need to be deployed in perhaps all 144 geographic NPAs.

A national number portability option using the SAC approach would also be more efficient. With this approach, the only calls that would be screened for purposes of identifying the serving carrier are those destined to a customer with a number in that SAC (*ala* 800 data base service). In contrast, local number portability requires that all originating and incoming calls be screened. The present demand for number portability does not appear to justify this extensive "screen every call" approach.

Currently, only 1 of every 200 U S WEST customers uses remote call forwarding, a capability providing one form of local number portability.²⁰ With this technology, the only calls that receive special processing are those destined to customers ordering the call forwarding option.

In contrast, the "every-call-data-base-query" approach advocated by some would impose unnecessary call processing on 199 of every 200 customers. For these customers, the new step of identifying the serving carrier would serve no useful purpose because the query would simply confirm that the dialed NPA-NXX is the switch serving the called party.

²⁰The Commission should not assume that every remote call forwarding customer buys this feature to obtain number portability. In fact, most customers purchase remote call forwarding to have a presence in a distant location (*e.g.*, a Denver business purchases the feature so its customers in Colorado Springs can call it by dialing only seven digits and avoiding a toll charge). Consequently, it would appear that the current demand for local number portability is something less than 0.5%.

The foregoing reasons would suggest that, at least in the near future, the industry's portability efforts are better focused on the provision of number portability that is national in scope rather than local in scope.

D. Consumer Impacts Must Be Considered. The public will certainly be impacted by the wide deployment of the local number portability capability discussed in the comments. The most vocal proponents of more robust forms of local number portability summarized the benefits of portability to the public. These same comments, however, did not mention some of the other impacts that the public will encounter.

The public's most immediate concern will be whether it will be asked to pay for the costs of implementing the capability even if it does not use it. The answer to this concern will depend upon the resolution of the cost recovery issues discussed in Part III(G) below.

However, the provision of more robust forms of local number portability will impact the public in another way: the continued ability to distinguish local from toll calls. The public today can distinguish a local call from a toll call within the originating NPA on the basis of the central office code of the party being called. If, however, the NXX no longer identifies a specific carrier's switch within an NPA, then the public will no longer know, based on the dialed digits, whether the calls it originates are local or toll.

The importance to the public of the ability to distinguish local from toll calls should not be underestimated. Even this nation's most sophisti-

cated users recently reminded this Commission of the importance of this capability to them.²¹

E. Local Number Portability May Require Massive Changes to Carriers' Billing and Operational Support Systems. The North American Numbering Plan was intentionally designed decades ago to route calls based on the dialed digits. Carriers therefore designed their billing and operational support systems (e.g., service provisioning, maintenance, repair) on the basis of the NPA-NXX of the dialed digits. Many of these systems will require major modifications if, as a result of implementing more robust forms of local number portability, the switch serving the called party can no longer be identified by the NPA-NXX in the dialed digits.

For example, the provision of more robust forms of local number portability would require the entire industry to modify the way in which it rates and bills toll calls. Today, each end office switch is assigned a V&H coordinate specific to that switch and, in determining the distance of a long distance call for the purpose of billing, carriers compare the V&H coordinates of the end office serving the calling party with the V&H coordinates of the end office serving the called party (identified by the NPA-NXX in the dialed digits). This rating method can no longer be used if there is no assurance that the NPA-NXX in the dialed digits actually serves the called party.

Similar modifications would be required to the dozens of systems used to provision service, maintain service and repair service.

²¹See Ad Hoc Telecommunications Users Committee Comments at 18-28.

F. The Industry May Need to Design a New Addressing Plan and Signaling Protocols May Have to be Modified. Some of the proponents of more robust methods of local number portability assert that this capability may result in a more efficient use of numbers. Actually, the number portability methods being advocated could pose a serious drain on this nation's numbering resource — unless the industry were to make dramatic changes in the way calls are routed.

The inefficiency of the portability options being discussed are illustrated by 800 data base. Every 800 subscriber is assigned two numbers for a single line: (1) the 800 number dialed by the public, and (2) the 800 subscriber's POTS number which carriers use to route the call to completion. The widespread deployment and use of number portability would likewise require the assignment of two telephone numbers for each access line (*i.e.*, the published number dialed by the public and another number used for routing the call to the switch serving the called party).

The assignment of two telephone numbers is not efficient, and the industry will likely have to change its routing and addressing methods if a healthy demand for number portability were ever to develop and to separate numbers (and dialing) from network addressing. This would mean that carriers would have to begin routing calls on some basis other than the dialed digits. Such a change would require the industry to develop and agree to a new network addressing plan; it would likely require changes to the signaling protocols (*e.g.*, MF, SS7) to incorporate these changes; and it would likely force the replacement of analog switching systems (*e.g.*, 1AESS).

G. Cost Recovery Questions Must Be Resolved Before the Industry Is Required to Make Significant Investments. Carriers cannot be expected to make new investments, particularly large ones, unless they have a reasonable assurance that, as a result of the investment, they will realize efficiencies (or cost savings) and/or new revenues sufficient to cover the investment. The subject of cost recovery is, therefore, critical and must be addressed before carriers are asked to make additional investments to provide more robust forms of local number portability.

Unfortunately, the subject of cost recovery received little attention in the comments. Two of the most vocal proponents of number portability (McCaw and Teleport) did not even mention the subject. In contrast, MFS acknowledged that portability implementation costs must be "recovered in an equitable and non-discriminatory manner from participating carriers," but it did not advance a specific proposal for public discussion.²²

The costs to provide local number portability may be substantial. The telephone industry will be submitting shortly its costs to provide 800 number portability, and these costs should give some indication of what it would cost to provide local number portability. It bears caution that, because of the additional network changes that must be made to provide local number portability (e.g., modifications to billing and operational support systems), it is

²²MFS Comments at 9. However, U S WEST must question what MFS means by "equitable and non-discriminatory." While supposedly supporting "equitable" cost recovery, MFS also appears to criticize the cost-causative methods of cost recovery used with the current forms of number portability. *Id.* at 7 ("Unless [customers] subscribe to a 'one-number' service (at additional cost), they must have a separate number for each telephone.")(emphasis added).

reasonable to expect that the cost to provide local number portability will be even larger than that required to provide 800 portability.

But whatever the costs of number portability may be, a fair and equitable way of recovering those costs must be developed, and this cost recovery issue must be resolved before carriers are asked to make new investments.

IV. CONCLUSION

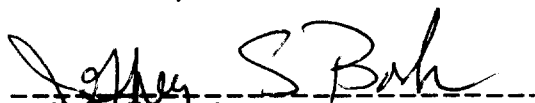
Some forms of local number portability already exist and new forms continue to be introduced. The industry is on the eve of using its first "carrier identified by a data base" approach, and industry groups are examining a similar "SAC" approach for non-800 calls. The industry will also discuss number portability as it considers and refines the long term plan for the North American Numbering Plan. Finally, at least the telephone industry is evolving its public switched network to an architecture that is conducive to the availability of additional portability options in the future.

In these circumstances, there does not appear to be a need for any Commission action at this time. If there is an unknown link in this evolution, it is whether the networks maintained by the rest of the telecommunications industry — specifically competitive access providers and interexchange carriers — are moving in the same direction so they can provide similar capabilities as well. Consequently, if the Commission wishes to

take some action at this time, it should investigate the directions of these carriers and their networks.

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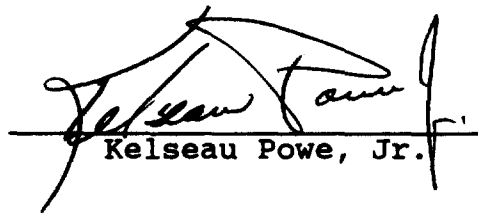
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CERTIFICATE OF SERVICE

I, Kelseau Powe, Jr., do hereby certify on this 24th day of February, 1993, that I have caused a copy of the foregoing **U S WEST REPLY COMMENTS REGARDING NUMBER PORTABILITY** to be mailed via first class mail, postage prepaid, to the persons named on the attached service list.


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